Claims

1. A method for data transmission, the method comprising the steps of:

(a) receiving a plurality of higher-layer packets;

(b) determining an error rate of a transmission;

(c) determining a lower-layer packet size based on the error rate;

(d) multiplexing higher-layer packets onto a lower-layer packet, the lower-layer packet having a size as determined in step (C); and

(e) transmitting the lower-layer packet.

2. The method of claim 1 wherein the step of receiving the plurality of higher-layer packets comprises the step of receiving the plurality of higher-layer packets from a plurality of users.

3. The method of claim 1 wherein the step of receiving the plurality of higher-layer packets comprises the step of receiving a plurality of higher-layer TCP/IP packets.

4. The method of claim 1 wherein the step of determining the error rate comprises the step of determining a bit error rate (BER)

5. The method of claim 1 wherein the step of determining the lower-layer packet size comprises the step of determining an optimal number of higher-layer packets that can be multiplexed onto a single lower-layer packet.

6. The method of claim1 wherein the step of multiplexing the higher-layer packets onto the lower-layer packet comprises the step of multiplexing UDP/IP packets onto a single PPP packet utilizing PPPmuxing techniques.

7. A method comprising the steps of:

receiving a plurality of UDP/IP packets from a plurality of users;

determining an error rate;

determining a PPP packet size based on the error rate;

multiplexing the plurality of UDP/IP packets onto a PPP packet having a size equal to the PPP packet size; and

transmitting the PPP packet.

8. The method of claim 7 wherein the step of receiving the plurality of UDP/IP packets comprises the step of receiving the plurality of UDP/IP packets from a plurality of remote or mobile users.

9. The method of claim 7 wherein the step of determining the error rate comprises the step of determining a bit error rate (BER).

10 The method of claim 7 wherein the step of determining the PPP packet size comprises the step of determining an optimal number of UDP/IP packets that can be multiplexed onto a single PPP packet.

11. The method of claim 7 wherein the step of multiplexing the plurality of UDP/IP packets onto the PPP packet comprises the step of utilizing PPPmuxing techniques to multiplex the plurality of UDP/IP packets onto the PPP packet.

12. An apparatus comprising:

a packet error estimator outputting a transmission error rate; and

a multiplexer having the transmission error rate as an input, having a plurality of higher-layer packets as an input, determining a lower-layer packet size based on the transmission error rate, and multiplexing the plurality of higher-layer packets onto a lower-layer packet, wherein the lower-layer packet has a size equal to the lower-layer packet size.

13. The apparatus of claim 12 wherein the multiplexer is a PPP multiplexer performing PPPmuxing.

14. The apparatus of claim 12 wherein the transmission error rate is bit error rate (BER)

15. The apparatus of claim 12 wherein the higher-layer packets comprise UDP/IP packets.

16. The apparatus of claim 12 wherein the lower-layer packet comprises a PPP packet.